



## CONBOX 2020 UPGRADE

S.N.: Customer: LEAR  
G20-04-LEA  
Year of Manufacture: 2020

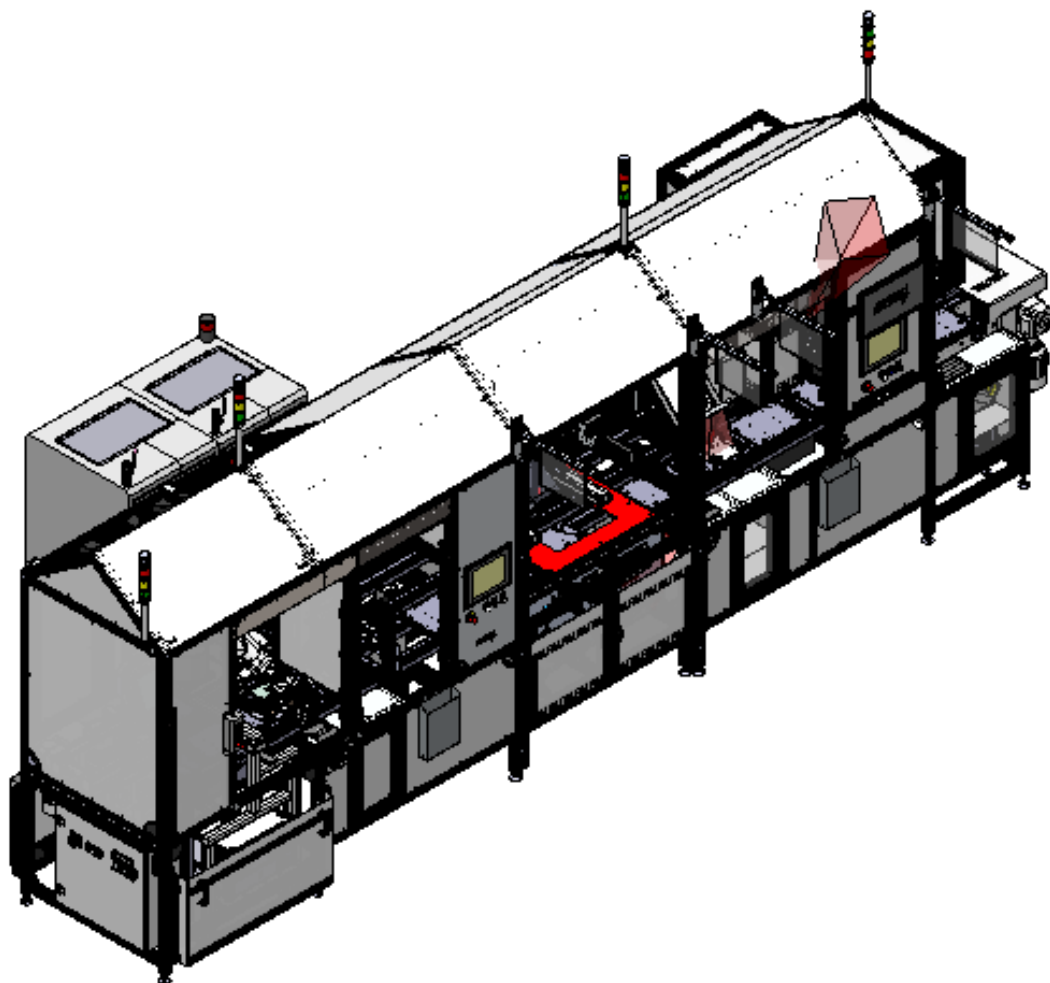
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## 1. GENERAL PURPOSE

The general purpose of this project is to correctly assemble the PCB against the housing, the assembly line has the availability to run 3 different models (Conbox, mid & C-box) it has 5 stations which are dispensing, pressed, screwed, Battery and marked. The station has sensors and vision cameras that help the operator to inspect the correct assembly of the product. Also has a 6-axis KUKA robot for automatic dispensing.

## 2. TECHNICAL DATA



### Main Parameters:

Footprint  
Control system  
User Interface

6900 x 5170 x 2790 mm  
OMRON  
Control buttons and control lights  
on cabinet

### Energy supply and consumption:

Electricity  
Compressed Air

220 VCA; /3~120 VCA  
6 bar (80 Psi)

### 3. SAFETY INSTRUCTIONS

#### 3.1. DEFINITIONS

##### OPERATING STAFF:

Any persons setting up **Machine** for production, switching it on, monitoring it during production, as well as smoothing out any irregularities in its normal operation and switching off the module at the end of production are called operating staff in the sense of these operating instructions. To this effect, the operating staff should be well acquainted with all the safety instructions, these operating instructions, and the instructions for the user interface of the control PLC, and they should also be well trained at Machine.

Any operating staff moreover taking care of setting up Machine for various panels and programming desired operating cycles should get a special additional training using the relevant documents and by practicing at the machine.

##### SERVICE STAFF:

Any persons maintaining and servicing **Machine** at regular intervals and eliminating possibly occurring malfunctions of the module and its components are called service staff in the sense of these operating instructions. To this effect, the service staff should be fully acquainted with all the relevant safety instructions, these operating instructions, and special technical documents regarding this module and its components as well, and, moreover, well-trained at Machine accordingly.

For additional information and maintenance support contact the supplier:

Company:	<b>IPTE</b>
Address:	<b>Alambiques 975 – 9 Parque industrial el Alamo, Guadalajara, Jalisco, México</b>
Phone:	<b>+52 (33) 3675 5597</b>
Fax:	<b>+52 (33) 1253 4965</b>
E-mail:	<b>Support@ipte.com</b>

### 3.2. SIGNAL TERMS

Following signal terms will be used in these operating Instructions in order to particularly point out certain mainly safety-relevant conditions.

#### **DANGER:**



**DANGER** in the sense of these operating instructions and the warnings mentioned on the products indicate that death, serious injury, or considerable property damage will occur if the relevant precautions are disregarded.

#### **WARNING:**



**WARNING** in the sense of these operating instructions and the warnings mentioned on the products indicate that death, serious injury, or considerable property damage may occur if the relevant precautions are disregarded.

#### **CAUTION:**



**CAUTION** in the sense of these operating instructions and the warnings mentioned on the products indicate that slight injury or property damage may occur if the relevant precautions are disregarded.

#### **NOTE:**



**NOTE** in sense of these operating instructions indicates an important information on the product or part of the operating instructions which would require particular attention.

### 3.3. GENERAL SAFETY INSTRUCTIONS

#### 3.3.1. SWITCHING ON/OFF

Behind Machine is located electrical cabinet with Main Switch and Voltage Indicator mounted on it. By turn this switch in position "ON", Voltage Indicator starts working. Machine can only be disconnected from the electrical power circuit by this main switch.

#### **WARNING**

Any covers and other protective devices must only be opened or removed by particularly authorized and qualified personnel. First, Machine should be **SWITCHED OFF** and a safeguard provided to prevent reclosing.



**All the safety devices must be in order at any time!**

Damaged protective devices or covers **MUST BE** immediately repaired or replaced respectively. If any components are supplied, the protective devices should be installed by the user according to the instructions and there after they should be tested. Any manipulations at the safety devices will endanger the staff of the plant. It is not allowed to operate Machine if it's protection constructions or devices are broken or missing!

**It is strictly forbidden to bypass the safety devices in any way!**

#### 3.3.2. SAFETY INSTRUCTIONS BY PLANT MANAGEMENT

The plant management should take following measures to ensure safety of the staff:

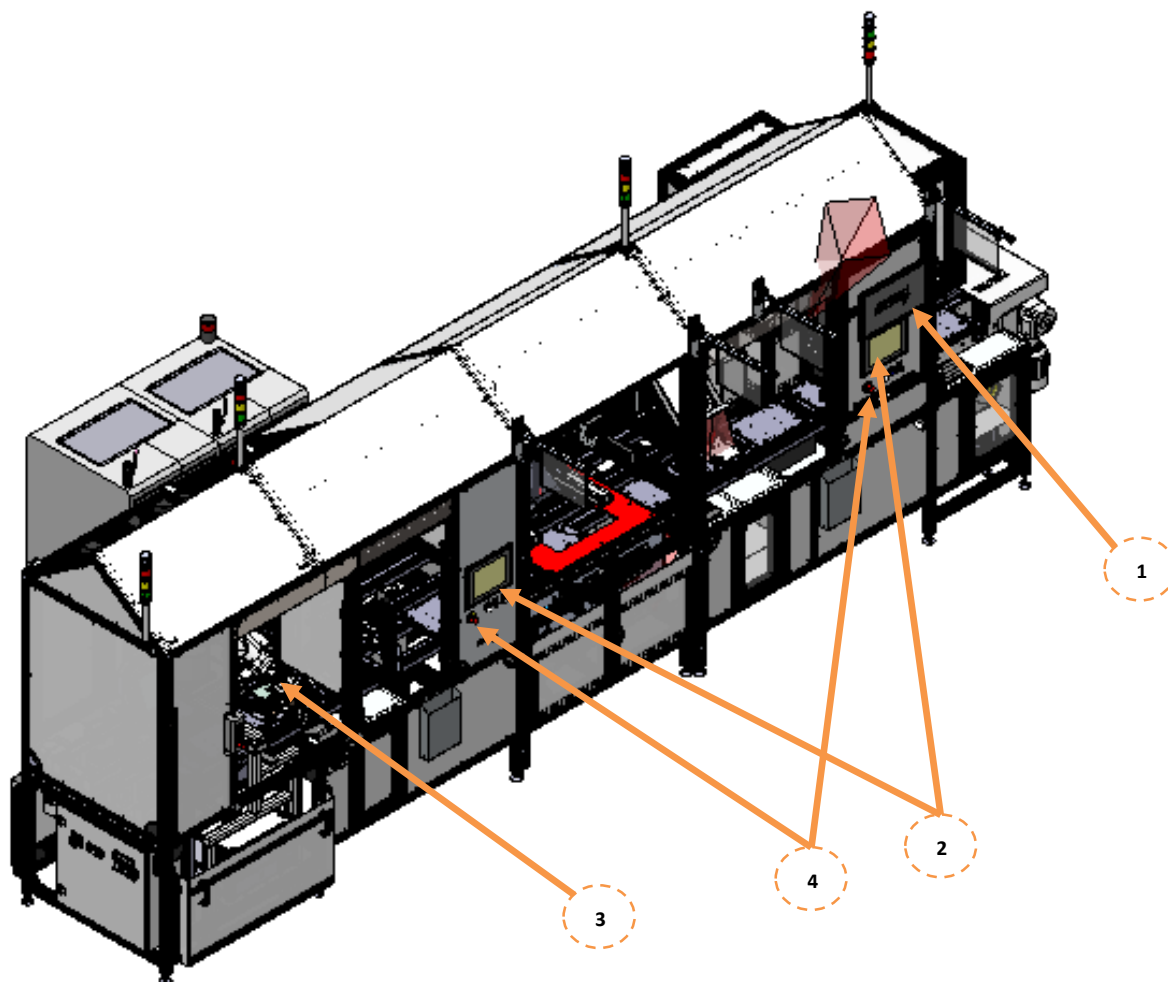
Instructions specifying responsibilities and actions in case of emergency situations such as fire, injuries etc. must be clearly determined. These instructions must be provided in a clearly visible manner at a suitable place in the proximity of Machine!

Any personnel handling Machine, i.e. **Operating staff** as well as **Service staff** must be well acquainted with the safety measures and relevant sections of these operating instructions concerning their work. To this effect, it is recommended to establish special instructions for **Operating staff** and **Service staff** relating to their particular tasks.

It is recommended to establish plant-relevant instructions for a regular and qualified maintenance and care of Machine.

## 4. MACHINE COMPONENTS

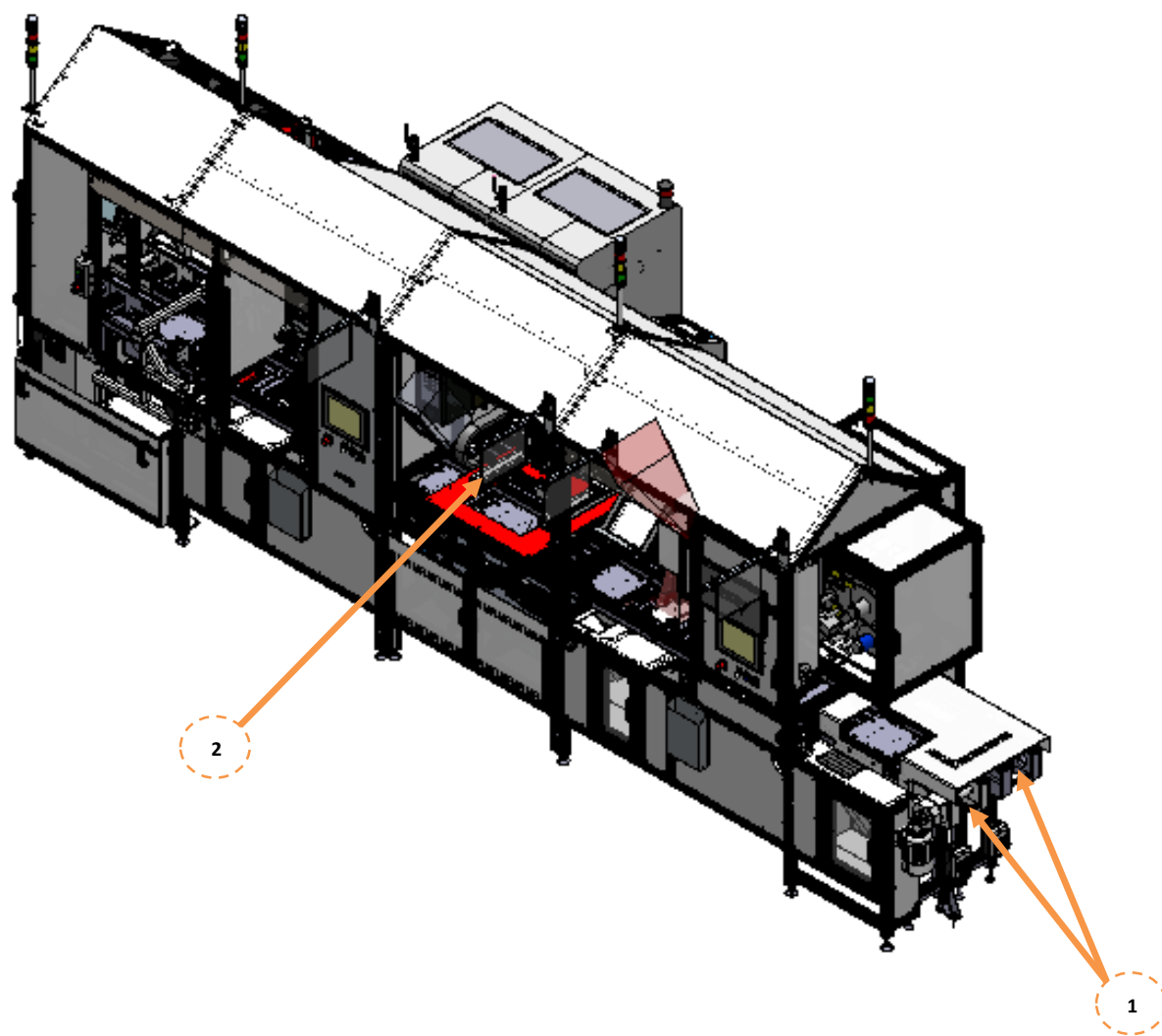
### 4.1. MAIN TEST ASSEMBLY



- 1. Screen
- 2. HMI
- 3. Robot

- 4. Emergency Stop





- 1. Conveyor
- 2. Modular Handling System



## WARNING

In combination with its software, installed and tested by **Manufacturer** and specific for this Machine, control logic (PC or PLC) will manage the central control, monitoring, and operating system.

Any changes in the delivered software system will endanger the function of the **Machine** and may reduce the safety of the one.

Any updates of the software system must only be performed by the staff of the manufacturer or its representatives or upon the manufacturer's explicit request, strictly following the relevant directions given by the manufacturer.

## 5. PROCESS DESCRIPTION

### 5.1. TURNING ON THE STATION

Steps for initializing the station.

1. Turn on the station.
2. Turn on the printer.
3. Turn on the PC.
4. Check that the emergency stops is not activated.
5. Check all doors are closed.
6. Check the stations are in automatic mode.
7. Press reset button to clean errors and active the safety system.

### 5.2. RESET OF STATION.

To reset the station during the process, follow the next steps:

For each station.

1. Put the station in manual mode.
2. Keep the button Reset pressed, during 3 seconds.
3. Turn the machine to the automatic mode

### 5.3. PROCESS DESCRIPTION DISPENSING STATION

The process of dispensing station is explained below. This process is only for Conbox model.

- Operator places housing on the pallet
- Operator place the PCB on the housing.
- Operator push the opto touch to start the process.
- The PCB is scanned in automatic
- The robot pick the assembly and go to inspect the China label
- The robot go to dispensing the part
- The robot place the part in to the pallet
- The dispensing path is inspected by the camera
- The pallet is release to next station.

### 5.4. PROCESS DESCRIPTION PRESS STATION.

The process of assembly of station is explained below.

- Operator places housing on the nest press.
- Operator place the PCB on the housing.
- Operator place the Cover on the tooling press.
- Operator clears the safety zone.
- Operator push the opto touch button to start process.
- Scanner read datamatrix PCB code.

- Station send the information to PC ITAC.
- Station wait result from ITAC.
- If result is not OK from ITAC the operator remove the PCB and push the reset button, then Operator install a new PCB into to housing and push again opto touch.
- If result is OK from ITAC; continue the process.
- The press assembly the cover with the housing.
- Station wait the assembly result.
- If assembly result is not OK the operator remove the unit and push the reset button, the Operator place a new housing to begin a new cycle.
- The station send data: press force and status result NOK to PC ITAC.
- If assembly result is OK the station send data: press force and status result OK to PC ITAC.
- Then the good part goes to the next station (Screwdriver St).

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### 5.5. PROCESS DESCRIPTION SCREWDRIVER STATION.

The process of assembly of station is explained below.

- Station check unit present and pallet information from last station (Press St).
- If not unit present the station release pallet.
- If the information from last station is empty the station release pallet.
- If there is unit in the station and the information correct from the las station the process continue.
- Station send the information datamatrix PCB code to PC ITAC.
- Station wait result from ITAC
- If result is not OK from ITAC the station release pallet.
- If result is OK from ITAC the station process the unit.
- Station automatically select the job and enable the screwdriver.
- Station run the program No. 2 in Janome robot to place the screw No. 1.
- Station waits result from screwing No.1.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HIM.
- Station send status result NOK and torque from screwdriver to PC ITAC.
- Station release pallet.
- If result is OK the station continue screwing the next screw.
- Station run the program No. 3 in Janome robot to place the screw No. 2.
- Station waits result from screwing No.2.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HMI.
- Station send status result NOK and torque from screwdriver to PC ITAC.
- Station release pallet.
- If result is OK the station continue screwing the next screw.
- Station run the program No. 4 in Janome robot to place the screw No. 3.
- Station waits result from screwing No.3.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HMI.
- Station send status result NOK and torque from screwdriver to PC ITAC.

- Station release pallet.
- If result is OK the station continue screwing the next screw.
- Station run the program No. 5 in Janome robot to place the screw No. 4.
- Station waits result from screwing No.4.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HMI.
- Station send status result NOK and torque from screwdriver to PC ITAC.
- Station release pallet.
- If result is OK the station continue screwing the next screw.
- Station run the program No. 6 in Janome robot to place the screw No. 5.
- Station waits result from screwing No.5.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HMI.
- Station send status result NOK and torque from screwdriver to PC ITAC.
- Station release pallet.
- If result is OK the station continue screwing the next screw.
- Station run the program No. 7 in Janome robot to place the screw No. 6.
- Station waits result from screwing No.6.
- If result is not OK the station not continue screwing.
- The operator push the reset button from HMI.
- Station send status result NOK and torque from screwdriver to PC ITAC.
- Station release pallet.
- If result is OK the station send data: status result OK and torque for each screw to PC ITAC.

Then the good part goes to the next station (Battery Assy St).

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## 5.6. PROCESS DESCRIPTION BATTERY ASSY STATION.

The process of assembly of station is explained below.

- Station check unit present and pallet information from last station (Screwdriver St).
- If not unit present the station release pallet.
- If the information from last station is empty the station release pallet.
- If there is unit in the station and the information correct from the last station the process continue.
- Station send the information datamatrix PCB code to PC ITAC.
- Station wait result from ITAC
- If result is not OK from ITAC the station release pallet.
- If result is OK from ITAC the station process the unit.
- Operator connect and assembly the battery.
- Operator push the opto touch to read the datamatrix code from battery.
- Operator place the cover battery.
- Operator push the opto touch to verify the cover battery.
- If the result cover battery is not OK the operator release the cover and place again, then push again the opto touch to verify the cover battery.
- If the result cover battery is OK the station send data: code datamatrix battery and status OK of cover battery to PC ITAC.

Then the good part goes to the next station (Printer St).

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### 5.7. PROCESS DESCRIPTION PRINTER STATION.

The process of assembly of station is explained below.

- Station check unit present and pallet information from last station (Battery Assy St).
- If not unit present the station release pallet.
- If the information from last station is empty the station release pallet.
- If there is unit in the station and the information correct from the last station the process continue.
- Station send the information datamatrix PCB code to PC ITAC.
- Station wait result from ITAC
- If result is not OK from ITAC the station release pallet.
- If result is OK from ITAC the station process the unit.
- Station move down the slider cylinder.
- Station move to close the gripper cylinder.
- Station move down the holder cylinders.
- Station move up the slider cylinder.
- Station turn rotary cylinder.
- Station move to work position support cylinder.
- Station send to PC ITAC that unit is in place position to place the label.
- Station wait to finish the printer.
- If the printer fail the station show the fail case.
- Operator push the reset button to release the unit.
- Station place the unit on the pallet.
- Station release the pallet.
- If the printer place the label correctly, PC ITAC trigger the scanner to read label.
- Station wait for result from PC ITAC.
- If the scanner fail the station show the fail case.
- Operator push the reset button to release the unit.
- Station place the unit on the pallet.
- Station release the pallet.
- If the scanner read the label correctly the station place the unit on the pallet.
- Station release the pallet.

Then the good or bad part goes to the next station (Unload St).

---

### 5.8. PROCESS DESCRIPTION UNLOAD STATION.

The process of assembly of station is explained below.

- The pallet arrive from last station (Printer St).
- Operator release unit from pallet.
- Operator push opto touch to release pallet.

Then Operator place the good part into the good rack parts and the bad part Operator place the unit into scrap rack.

---

#### 5.9. MODES OF OPERATION OF THE STATION.

**Automatic:** This mode of operation is activated by turning the key to “Auto” in the main screen of the HMI. The automatic mode is required to perform sequences in the station.

**Manual:** This mode of operation is activated by turning the key to “Manual” in the main screen of the HMI. When this mode is activated during the sequence, the station will remain in the last step until the automatic mode is returned. When this mode of operation is activated, manual operation of the cylinders can be performed.

## 6. DESCRIPTION OF SCREENS

### 6.1. PRESS STATION

#### 2.1.1. MAIN SCREEN



<b>Service</b>	Go to service information screen
<b>Main Menu</b>	Go to main menu
	Change language to English
	Change language to Spanish
<b>12/05/2017 08:25</b>	Date & Hour



## 2.1.2. MAIN MENU



Operation

Go to operation screen. This screen is the operator's screen.

Maintenance

Go to maintenance screen

Enginner

Go to engineer screen

Alarms History

Go to historic alarms occurred screen

Service


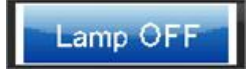




Go to service information screen

### 2.1.3. OPERATION SCREEN



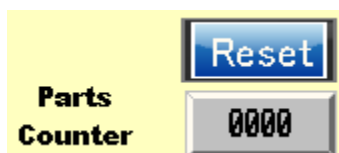
This screen is the operation screen and help to operator to know what the next instruction to operate the machine and show what the current status of the machine is. The screen shows the dispenser station and the press.

In this screen the operator can see the validation results of the all parts of the process.

	Indicates the current machine mode
	Turn ON/OFF the operator lamp
	Put the station in By pass mode
	Go to conveyor screen
	Show the step description
	Show the step number from the sequence.



Shows the current pallet number.



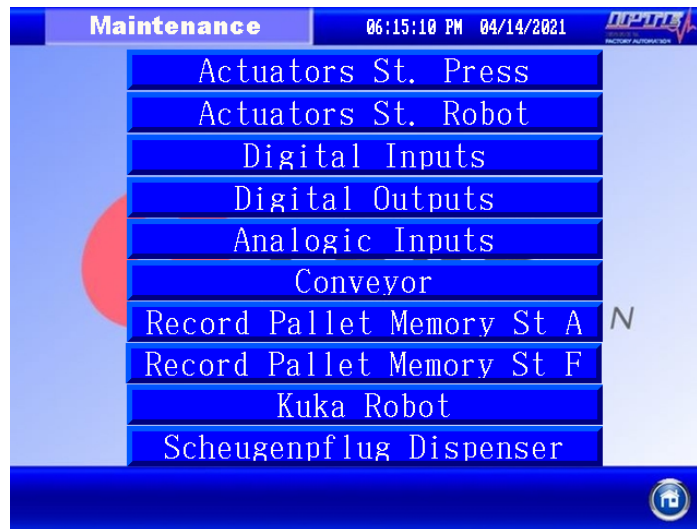
Shows the counting of produced pieces.

#### 2.1.4. MAINTENANCE SCREEN



To enter in some screens need to type the password:

**4321**



Actuators St. Press	Go to press station actuators screen.
Actuators St. Robot	Go to robot station actuators screen.
Digital Inputs	Go to digital inputs status screen.
Digital Outputs	Go to digital outputs status screen.
Analogic Inputs	Go to analogic inputs status screen.
Conveyor	Go to conveyor status screen.
Record Pallet Memory St A	Go to station A RFID control screen
Record Pallet Memory St F	Go to station F RFID control screen
Kuka Robot	Go to robot manual control screen
Scheugenpflug Dispenser	Go to Scheugenpflug manual screen

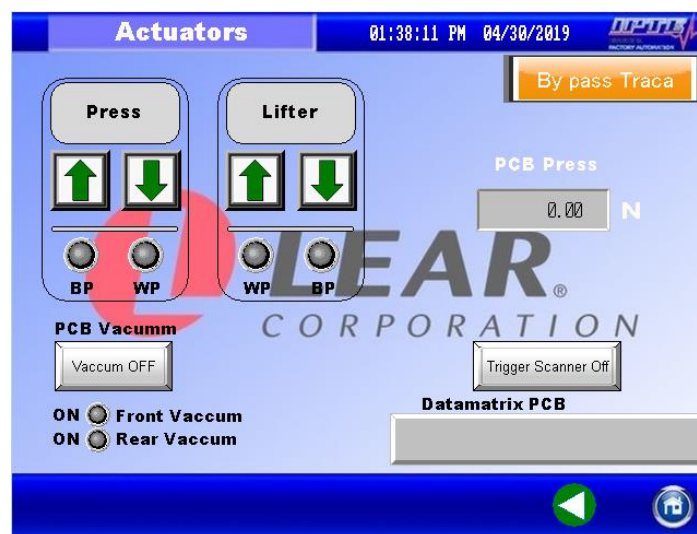
#### 1.1.1. ENGINEER SCREEN



To enter in some screens need to type the password:

**6149**

### 1.1.2. ACTUATORS SCREEN

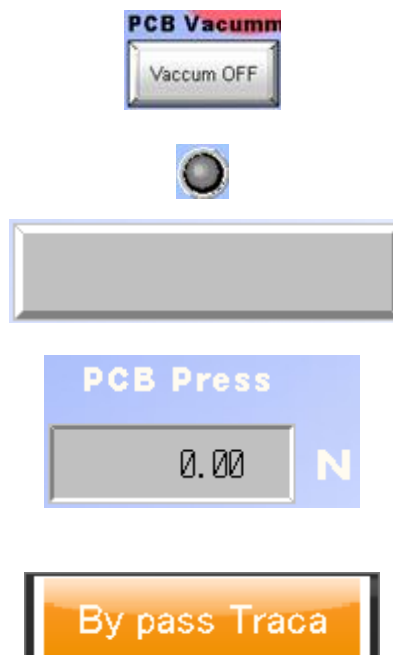


To move all cylinders and vacuum valves in manual mode.



Move the cylinder to base position

Move the cylinder to work position



Turn on/off the valve

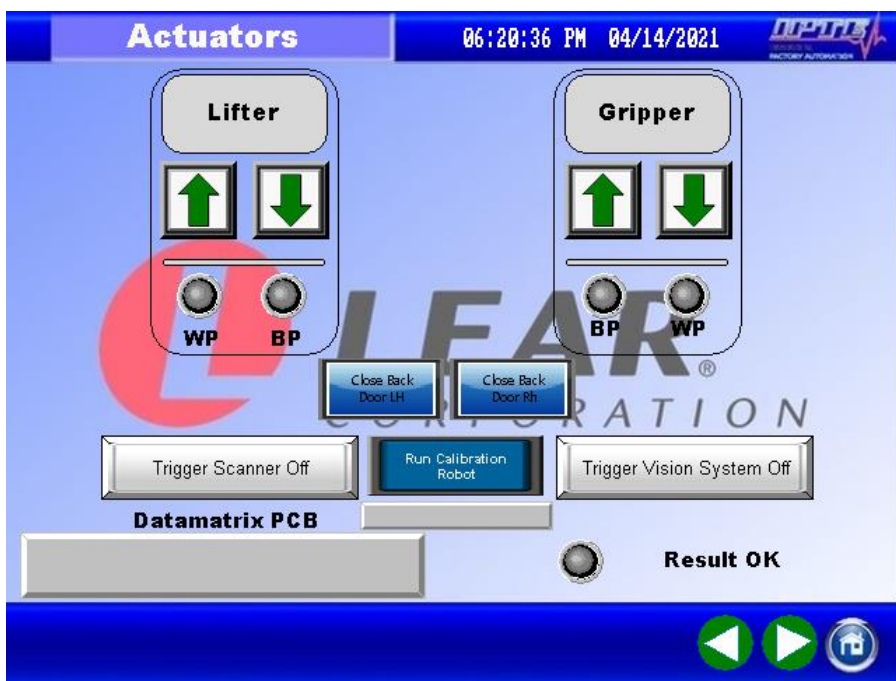
Status indicator. In the cylinders it indicates the current position of the cylinder. In valves indicate the status ON/OFF.

Show the information from datamatrix code

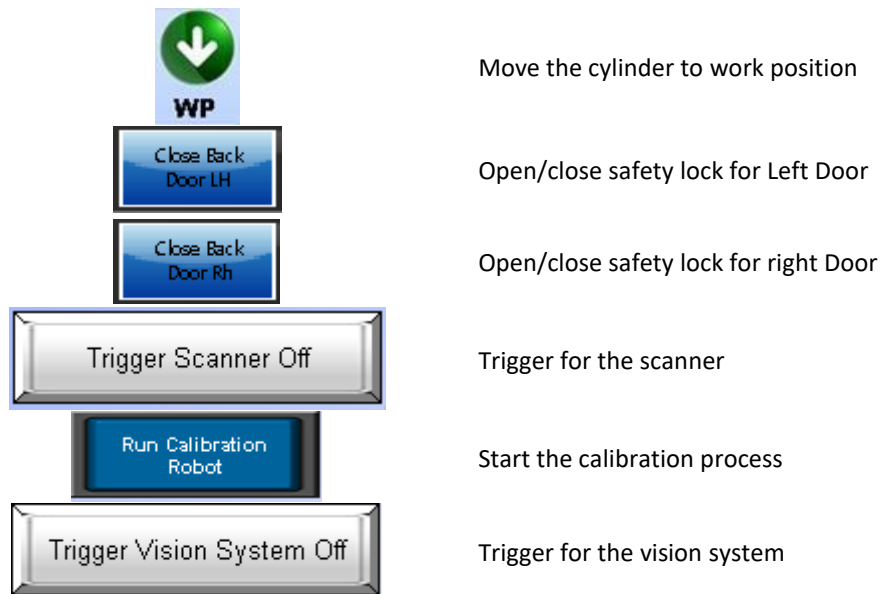
Show the information from PCB Press

Station in By pass Trazability

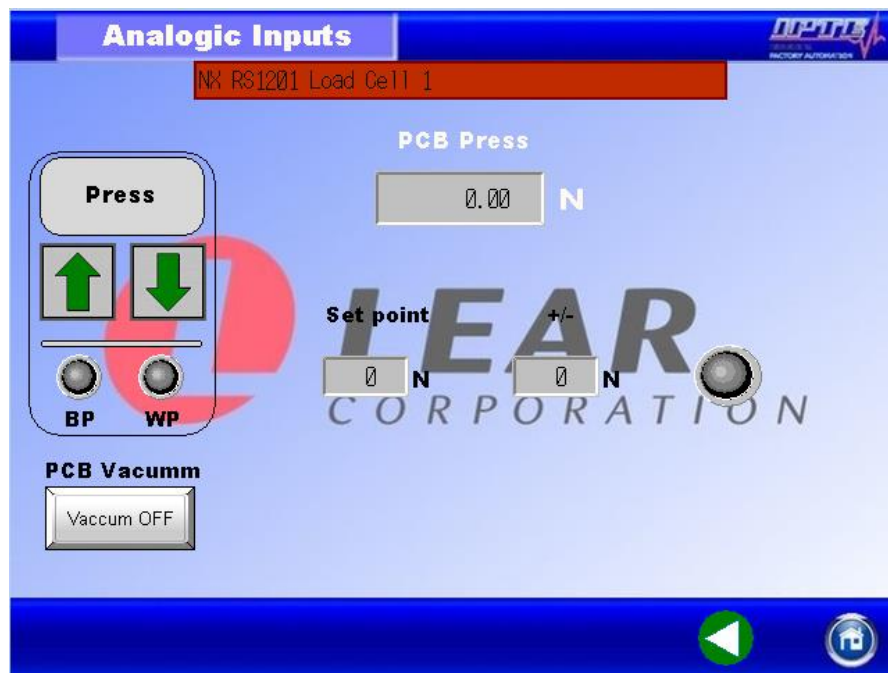
### 1.1.3. ACTUATORS SCREEN



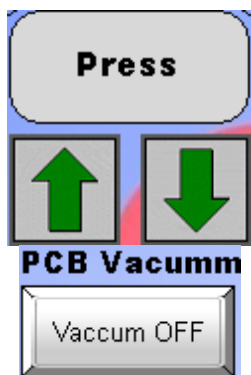
Move the cylinder to base position



#### 1.1.1. ANALOGIC INPUTS



To move all cylinders and vacuum valves in manual mode.



Move the cylinder to base/work position.



Show the information from PCB Press

Status indicator. In the cylinders it indicates the current position of the cylinder. In valves indicate the status ON/OFF.



Indicates the value of the load cell in PCB press.



For the operation of the press, it is necessary to write the value required for the process.



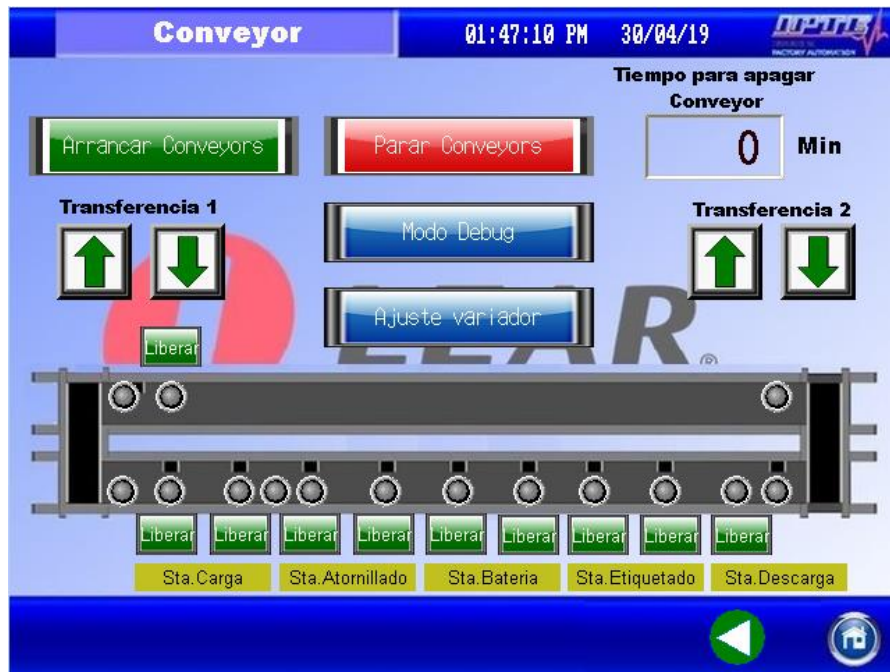
This part is to write the tolerance allowed between the target value and the current value during the process.



Show the status OK/NOK of the press.

#### 1.1.1. CONVEYOR SCREEN





In this screen you can monitor the status of the stoppers and control the conveyors motors and transfers.



Start all conveyors motors.



Stop all conveyors motors.



Start the debug conveyor sequence. When this function is On, the pallets will pass without initiating sequence in the stations.



Go to variator adjustment screen.



Set the timeout for turn off the conveyor when the machine is stopped.



Move transfer 1 in manual mode.



Move transfer 2 in manual mode.

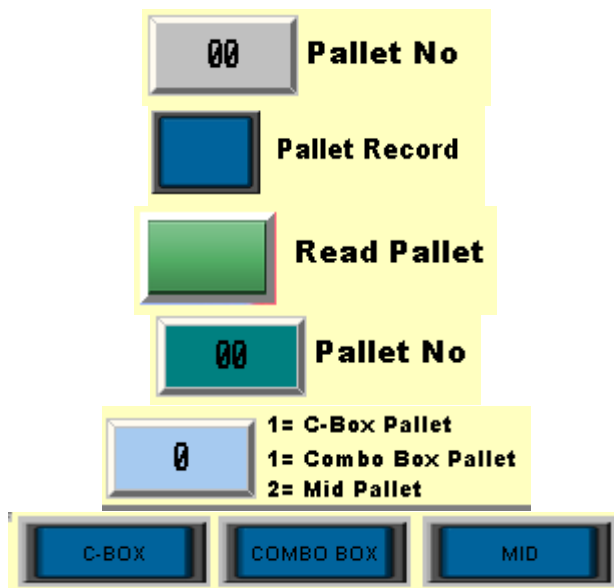
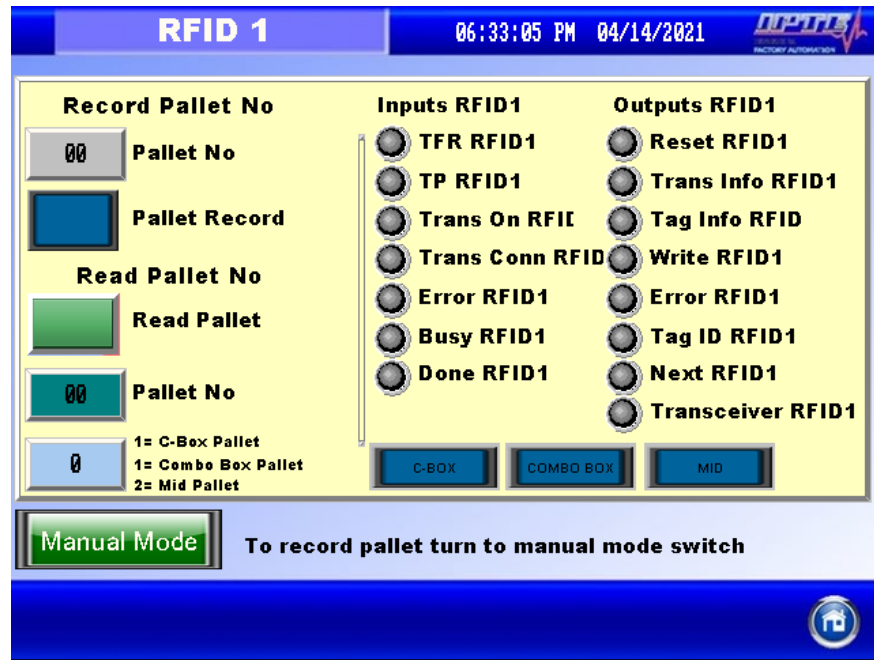


Press to release the pallet



Status of the stopper. When is yellow it means there is a pallet in the stopper.

### 1.1.1. RECORD PALLETS MEMORY ST. A SCREEN



Shows the number that will be saved in the pallet.

Button to start the record of the new pallet number

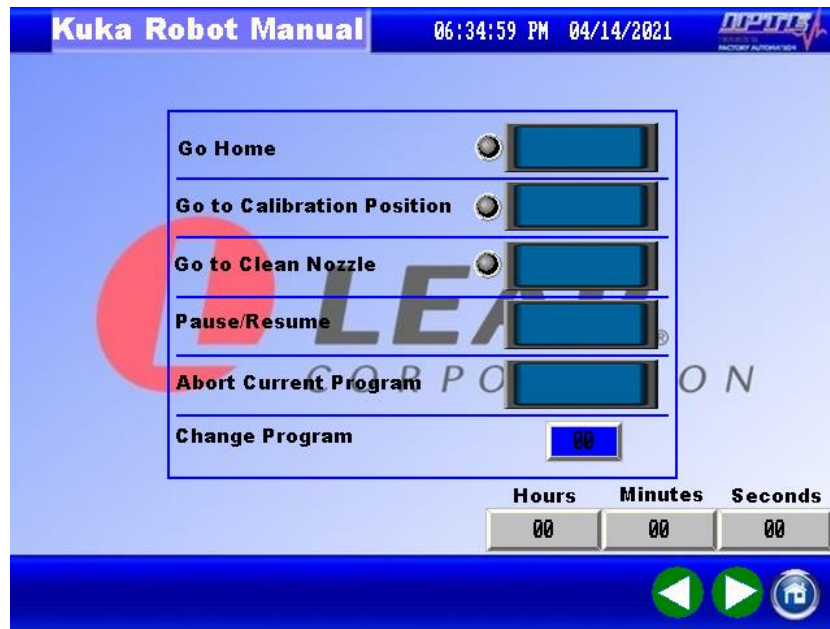
Button to read the current pallet number







Current pallet number read

Shows the model of the pallet (C box, Combox, Mid)

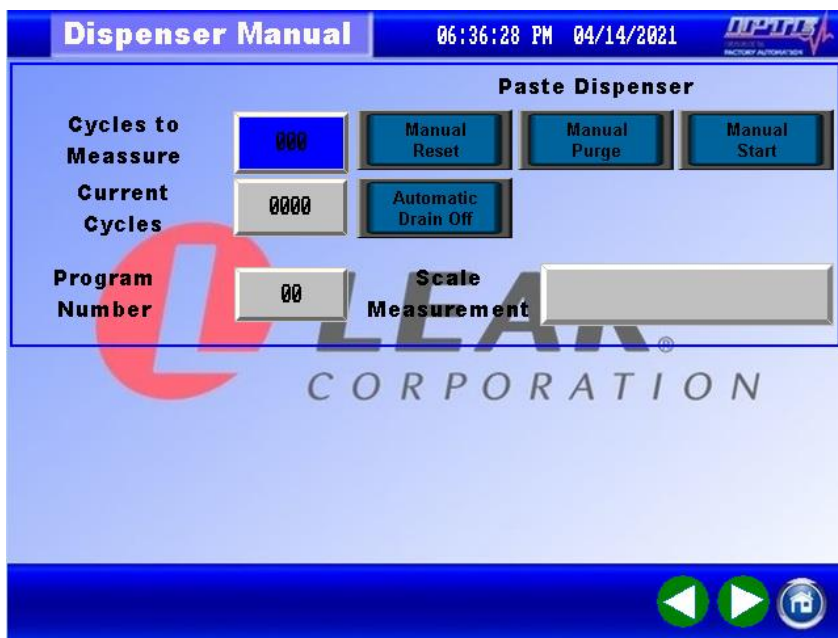
Buttons to write the model in to the pallet

### 1.1.2. KUKA ROBOT SCREEN




<b>Go Home</b>		Button to send robot to home position
<b>Go to Calibration Position</b>		Button to send robot to calibration position
<b>Go to Clean Nozzle</b>		Button to send robot to clean the nozzle
<b>Pause/Resume</b>		Pause/resume the current task the robot is running
<b>Abort Current Program</b>		Abort the current program the robot is running
<b>Change Program</b>		Change the current robot program

### 1.1.3. SCHEUGENPFLUG DISPENSER SCREEN



Manual Reset	Button to reset the errors in manual mode
Manual Purge	Button to start the purge in manual mode
Manual Start	Button to start dispensing sequence in manual mode
Automatic Drain Off	Button to drain the dispenser system
Current Cycles	Quantity of dispensing cycles
Program Number	Number of the current program that is running
Scale Measurement	Shows the weight of the current calibration

#### 1.1.4. ALARMS HISTORY SCREEN

Alarms History				09:14:42 AM 12/05/2017	
DT Occur.	TM Canc.	Count	Message		
12/05/2017 08:25:00 AM		1	Error 052.- Communication los		
12/05/2017 08:24:50 AM		1	Error 048.- Conveyor.- Conve		
12/05/2017 08:24:50 AM		1	Error 051.- Conveyor.- trans		
12/05/2017 08:24:50 AM		1	Error 050.- Conveyor.- Trans		
12/05/2017 08:24:50 AM		1	Error 049.- Conveyor.- Conve		
12/05/2017 08:24:50 AM		1	Error 015.- St 04.- Rear Doc		
12/05/2017 08:24:50 AM		1	Error 014.- St 04.- Right si		
12/05/2017 08:24:50 AM		1	Error 013.- St 03.- Light Cl		
12/05/2017 08:24:50 AM		1	Error 012.- St 02.- Front Dc		
12/05/2017 08:24:50 AM		1	Error 011.- Power Supply F40%		
12/05/2017 08:24:50 AM		1	Error 010.- Power Supply F30%		
12/05/2017 08:24:50 AM		1	Error 009.- St 02.- Rear Doc		
12/05/2017 08:24:50 AM		1	Error 008.- St 01.- Rear Doc		
12/05/2017 08:24:50 AM		1	Error 007.- St 01.- Light Cl		
12/05/2017 08:24:50 AM		1	Error 005.- St 04.- Emergenc		
12/05/2017 08:24:50 AM		1	Error 004.- St 02.- Emergenc		
12/05/2017 08:24:50 AM		1	Error 003.- St 01.- Emergenc		
12/05/2017 08:24:50 AM		1	Error 002.- Main air Low Pres		

In this screen the operator can see the occurred alarms. This history saves the date, time, counter of incidents and the description of the failure.

#### 1.1.5. INFORMATION SCREEN

**Service**
09:16:44 AM 12/05/2017


ING. Elias PerezGomez  
Phone: + 52 (33) 1253-4958  
Mobile: + 52 1 (33) 1699-4185  
E-mail: Elias.Perezgomez@ipte.com

ING. Luis Gerardo Alcaraz Horta  
Phone: + 52 (33) 1253-4957  
Mobile: + 52 1 (33) 1699-4183  
E-mail: Gerardo.Alcaraz@ipte.com

ING. Ivan Pintor  
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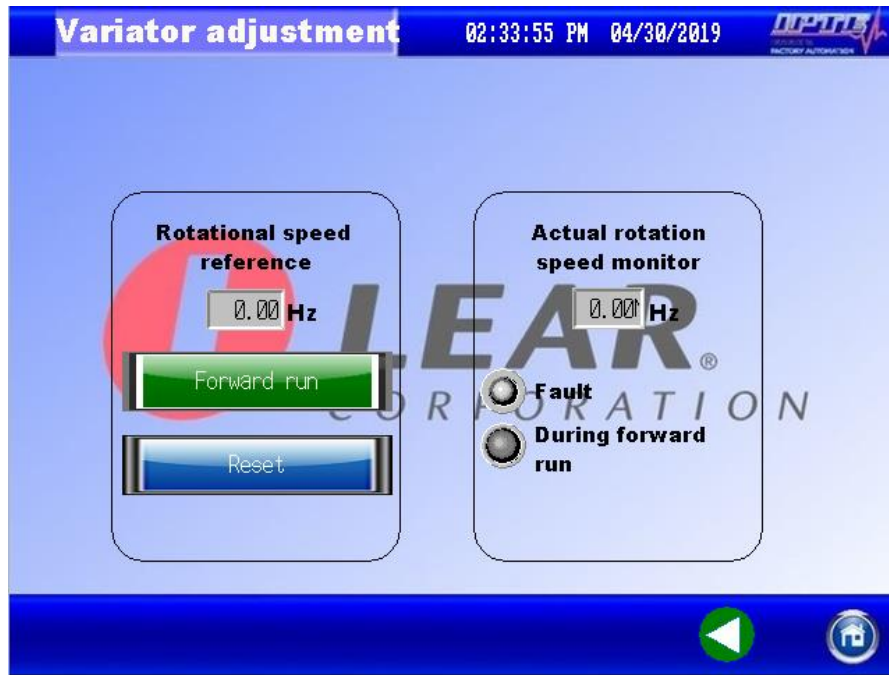


**EXPERTS IN  
FACTORY AUTOMATION**

12/05/2017 08:25:00 AM


This screen show the service contacts information.

#### 6.1.1. VARIATOR ADJUSTMENT SCREEN



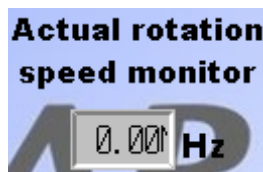
In this screen you can control and view the status of the frequency converter of the front conveyor motor.



The user can manipulate the rotation speed of the inverter.

Button used to start or stop the rotation of the conveyor motor 1.

Button used to reset frequency inverter.



Indicates the current rotation speed of the motor of the conveyor 1.



Indicates if the device is in fault.




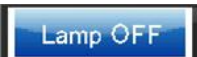


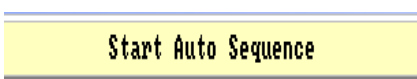
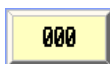

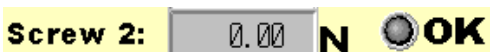
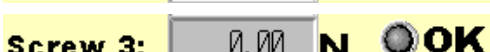
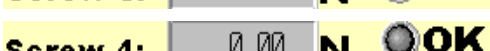
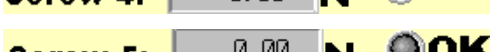
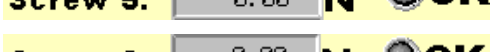
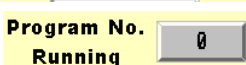
Indicates if the device is running.



### 6.2.1. OPERATION SCREEN



The screenshot shows the 'Operation' screen with a title bar displaying '09:22:18 AM 03/04/2019' and the IPTE logo. The main area is divided into sections for 'Step' (000), 'Step Description', and a list of status indicators. The 'Step Description' section includes 'Pallet No', 'Screwed on lid.', and 'Torque' (Screw 1-6). The 'Status Indicators' section includes 'Pallet Present', 'Housing Present', 'Screwing the lid.', 'Robot Janome moving', 'Result Screwed OK', 'Result Screwed NOK', and 'TAG Present RFID2'. A 'Screw Counter' is also present with a 'Reset' button. At the bottom, there are buttons for 'Manual Mode', 'Reset', 'Lamp OFF', and 'By pass', along with a 'Program No. Running' display showing '0'.

	Indicates the current machine mode
	Turn ON/OFF the operator lamp
	Reset station
	Put the station in By pass mode
	Show the step description
	Show the step number from the sequence.
	Show the torque and status result Screw 1
	Show the torque and status result Screw 2
	Show the torque and status result Screw 3
	Show the torque and status result Screw 4
	Show the torque and status result Screw 5
	Show the torque and status result Screw 6
	Show current program number from Janome robot



Shows the current pallet number.



Shows the counting of screwed.



shows when the back door is open in manual mode with the switch.

## 6.2.2. ACTUATORS SCREEN

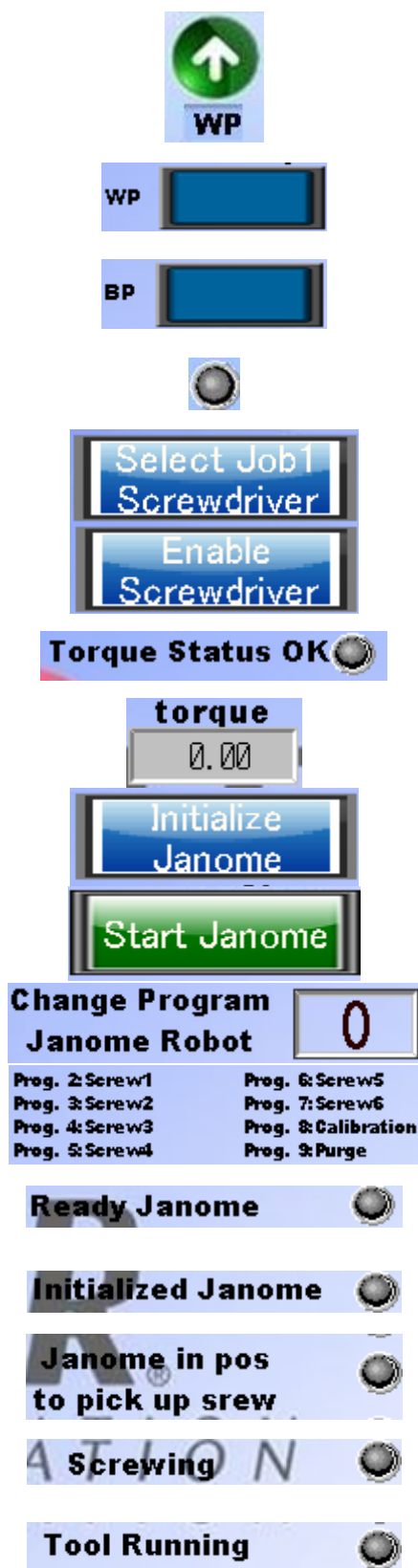


To move all cylinders and vacuum valves in manual mode.



Move the cylinder to base position





Move the cylinder to work position

Turn on the valve

Turn off the valve

Status indicator. In the cylinders it indicates the current position of the cylinder. In valves indicate the status ON/OFF.

Select Job No. 1 in Screwdriver

Enable tool Screwdriver

Status indicator Torque OK

Show the current torque from Screwdriver

Initialize Janome robot

Start to run current program selected in Janome robot

Change program No. Janome robot

Describe the program No. to No. screw

Signal to indicate when Janome is ready

Signal to indicate when Janome is initialized

Signal to indicate when Janome is in position to pick up screw

Signal to indicate when screwdriver is screwing

Signal to indicate when screwdriver is running



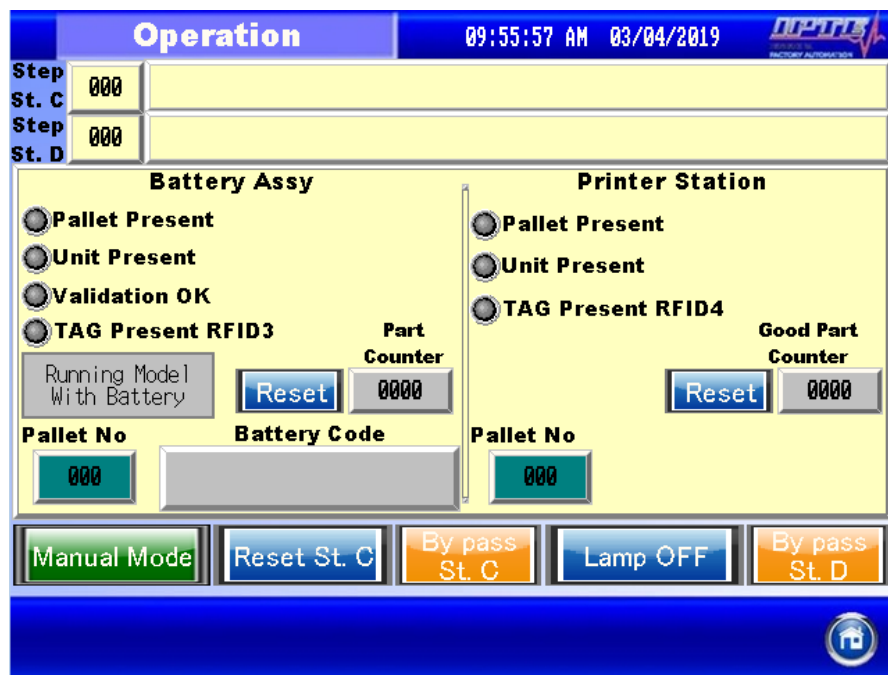
Push button to open rear door station screwdriver

Push button to open front door station screwdriver

shows when the back door is open in manual mode with the switch.

## 6.2. BATTERY ASSY STATION/PRINTER STATION

### 6.3.1. OPERATION SCREEN



Indicates the current machine mode




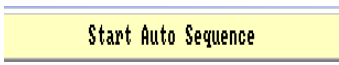

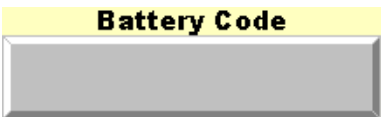



Turn ON/OFF the operator lamp



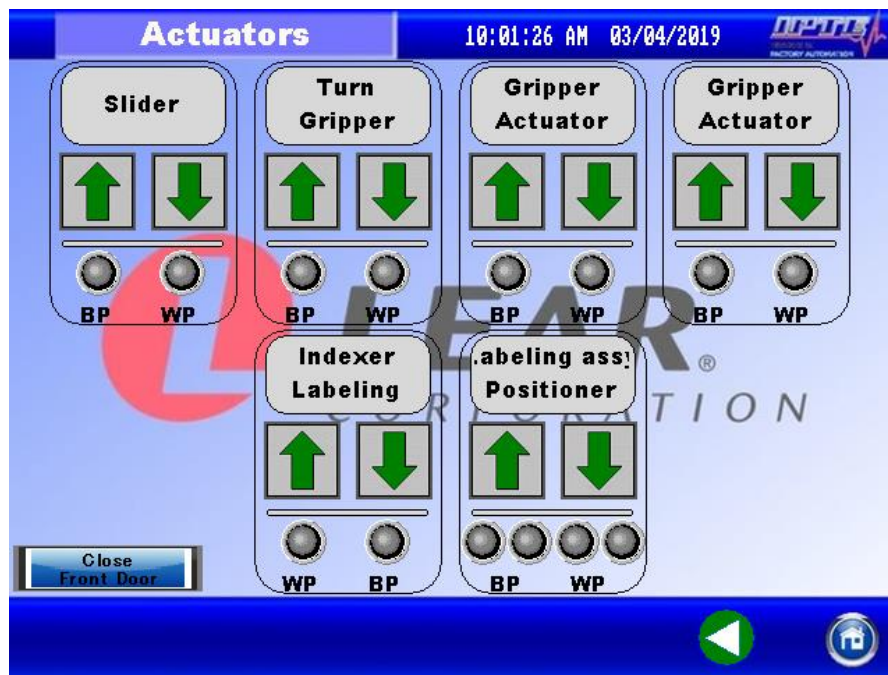
Reset station C



Put the station in By pass mode

	Put the station in By pass mode
	Show the step description
	Show the step number from the sequence.
	Show the datamatrix code read from battery
	Shows the current pallet number.
	Shows when the operation is being carried out in batteryless mode.
	Shows the counting of produced pieces

### 6.3.2. ACTUATORS SCREEN





Move the cylinder to base position

Move the cylinder to work position

Status indicator. In the cylinders it indicates the current position of the cylinder. In valves indicate the status ON/OFF.

button to allow opening front door.

## 7. TROUBLESHOOTING.

### 7.1. ALARMS

**Error 001. - Safety relay deactivated**

Verify safety conditions in doors and E-stops ok and then press reset.

**Error 002. - Main air Low Pressure**

Verify the main air valve is opened.

**Error 003. - St 01. - Emergency Stop Activated**

Release the E-Stop button of the presses station and then press reset.

**Error 004. - St 02. - Emergency Stop Activated**

Release the E-Stop button of the screwdriver station and then press reset.

**Error 005. - St 04. - Emergency Stop Activated**

Release the E-Stop button of the printer station and then press reset.

**Error 006. - Conveyor. - Emergency Stop Activated**

Release the E-Stop button of the Conveyor and then press start conveyor.

**Error 007. - St 01. - Light Curtain interfered**

Light Curtain is not aligned correctly or is interfered, aligned correctly and take off security area.

**Error 008. - St 01. - Rear Door Opened**

Close the rear door of the presses station and then press reset.

**Error 009. - St 02. - Rear Door Opened**

Close the rear door of the screwdriver station and then press reset.

**Error 010. - Power Supply F3051G OFF**

Verify power supply F3051G is connected in main enclosure.

**Error 011. - Power Supply F4021G OFF**

Verify power supply F4021G is connected in main enclosure.

**Error 012. - St 02. - Front Door Opened**

Close the front door of the screwdriver station and then press reset.

**Error 013. - St 03. - Light Curtain interfered**

Light Curtain is not aligned correctly or is interfered, aligned correctly and take off security area.

**Error 014. - St 04. - Right side Door Opened**

Close the right side door of the printer station and then press reset.

**Error 015. - St 04. - Rear Door Opened**

Close the rear door of the printer station and then press reset.

**Error 016. - St 04. - Front Door Opened**

Close the front door of the screwdriver station and then press reset.

**Error 017. - St 01 - Indexer 1 Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 018. - St 01 - Indexer 1 Cylinder error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 019. - St 01 - Indexer 1 Cylinder error to Base/Work Posi**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 020. - St 02 - Indexer 2 Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 021. - St 02 - Indexer 2 Cylinder error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 022. - St 02 - Indexer 2 Cylinder error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 023. - St 01 - Press Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 024. - St 01 - Press Cylinder error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 025. - St 01 - Press Cylinder error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 026. - St 03 - Indexer 3 Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 027. - St 03 - Indexer 3 Cylinder error to Base Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 028. - St 03 - Indexer 3 Cylinder error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 029. - St 01 - Press 1 Vacuum Lost**

The vacuum is lost, check the part correctly mounted and the main air pressure is OK.

**Error 030. - St 04 - Holders unit error to Base Position**

The cylinders should be in base position. Check the condition of the cylinder and check the base position sensors status.

**Error 031 .- St 04 - Holders unit error to Work Position**

The cylinders should be in work position. Check the condition of the cylinder and check the base position sensors status.

**Error 032 .- St 04 - Holders unit error to Base/Work Position**

The cylinders should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 033 .- St 04 - Indexer 4 Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 034 .- St 04 - Indexer 4 Cylinder error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 035 .- St 04 - Indexer 4 Cylinder error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 036 .- St 04 - Slider error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 037 .- St 04 - Slider error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 038 .- St 04 - Slider error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 039 .- St 04 - Support Cylinder error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 040 .- St 04 - Support Cylinder to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 041 .- St 04 - Support Cylinder error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 042 .- St 04 - Rotary error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 043 .- St 04 - Rotary error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 044 .- St 04 - Rotary error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 045 .- St 04 - Gripper error to Base Position**

The cylinder should be in base position. Check the condition of the cylinder and check the base position sensor status.

**Error 046 .- St 04 - Gripper error to Work Position**

The cylinder should be in work position. Check the condition of the cylinder and check the work position sensor status.

**Error 047 .- St 04 - Gripper error to Base/Work Position**

The cylinder should be in a registered position. Check the condition of the cylinder and check the base and work position sensors status.

**Error 048 .- Conveyor .- Conveyor Motor 1 no activted**

The motor 1 is not running.

- Start the automatic sequence.
- Go to conveyor screen to activate motors.
- Check de contactor in the main enclosure.

**Error 049 .- Conveyor .- Conveyor Motor 2 no activted**

The motor 2 is not running.

- Start the automatic sequence.
- Go to conveyor screen to activate motors.
- Check de contactor in the main enclosure.

**Error 050 .- Conveyor .- Transfer Motor 1 no activted**

The motor transfer 1 is not running.

- Start the automatic sequence.
- Go to conveyor screen to activate motors.
- Check de contactor in the main enclosure.

**Error 051 .- Conveyor .- transfer Motor 2 no está activo**

The motor transfer 2 is not running.

- Start the automatic sequence.
- Go to conveyor screen to activate motors.
- Check de contactor in the main enclosure.

**Error 052 .- Communication lost whit traceability App**

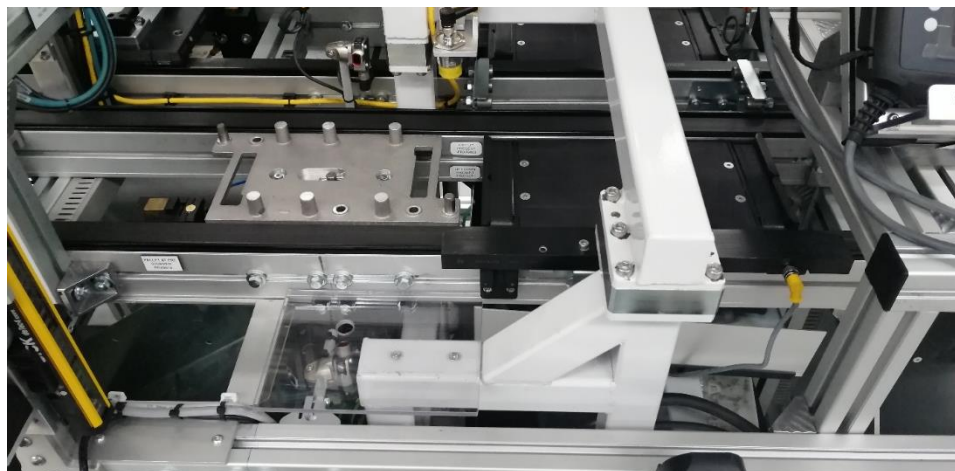
Communication lost PLC with PC traceability application, check that PC is turn on, check that application in PC is running, check the connection.



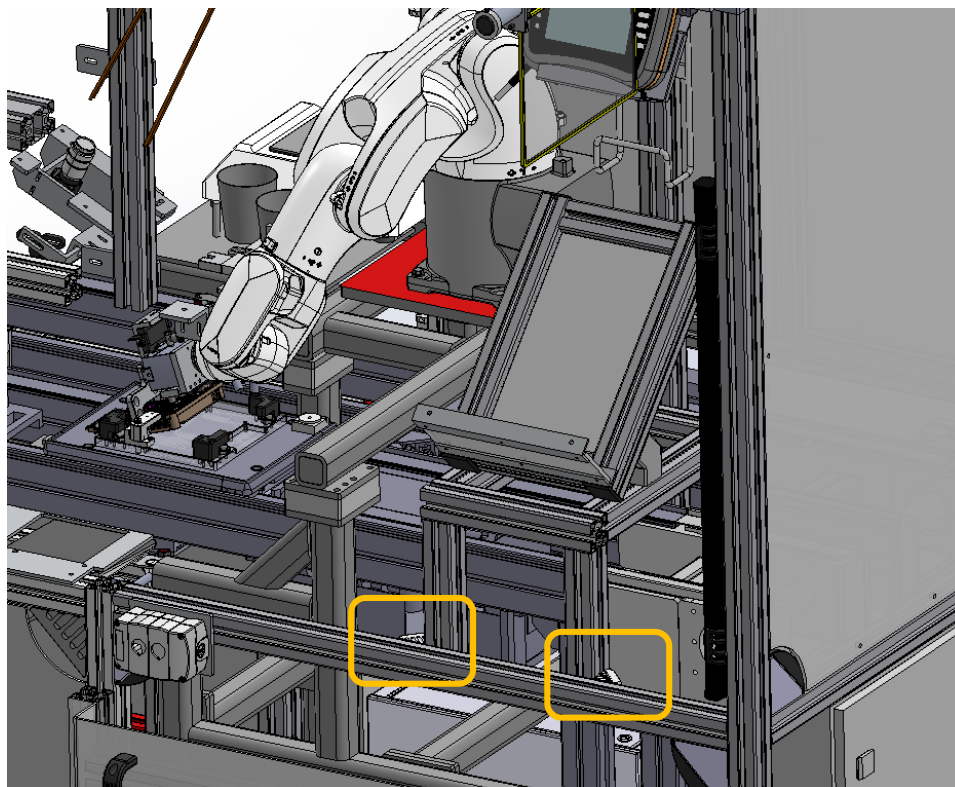
## 8. CONVEYOR MAINTENANCE

In the next section we will describe the steps to follow to change transmission bands

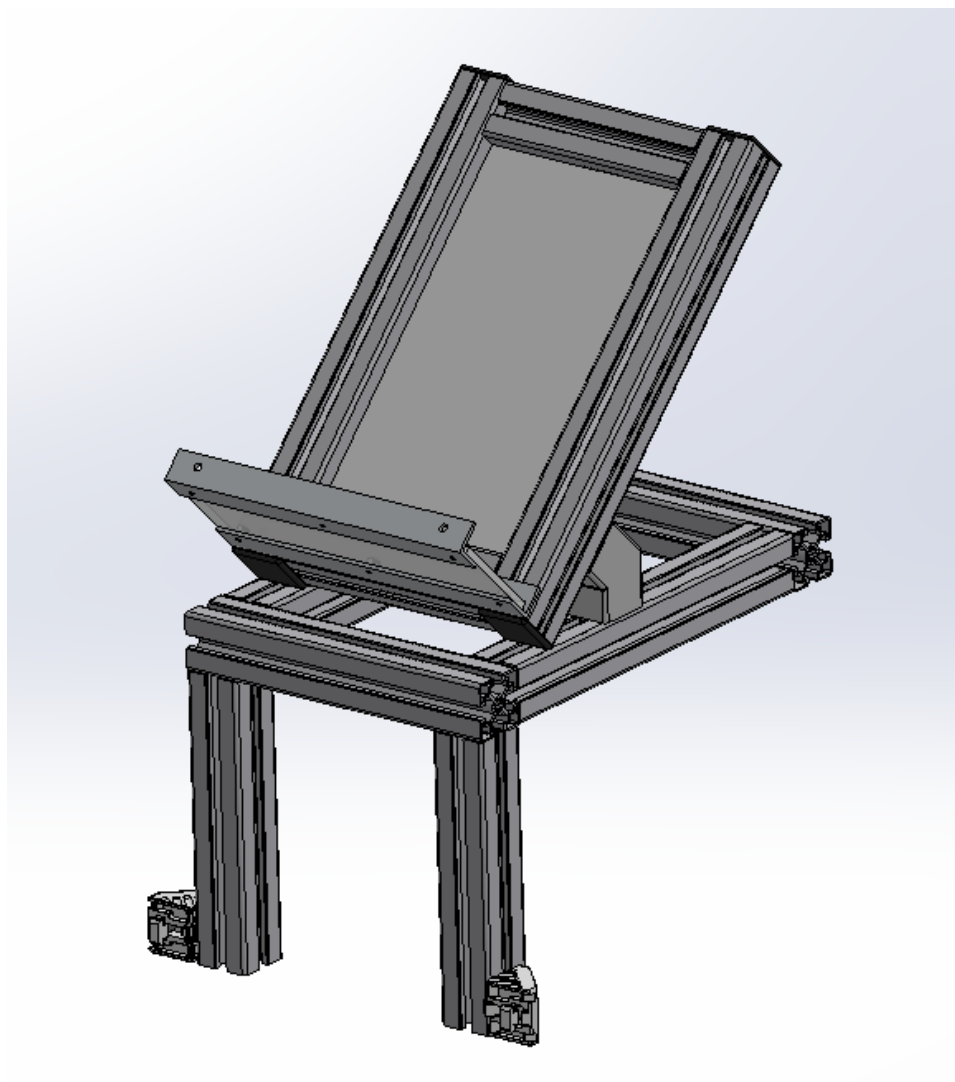
- Locate the access under the robot frame



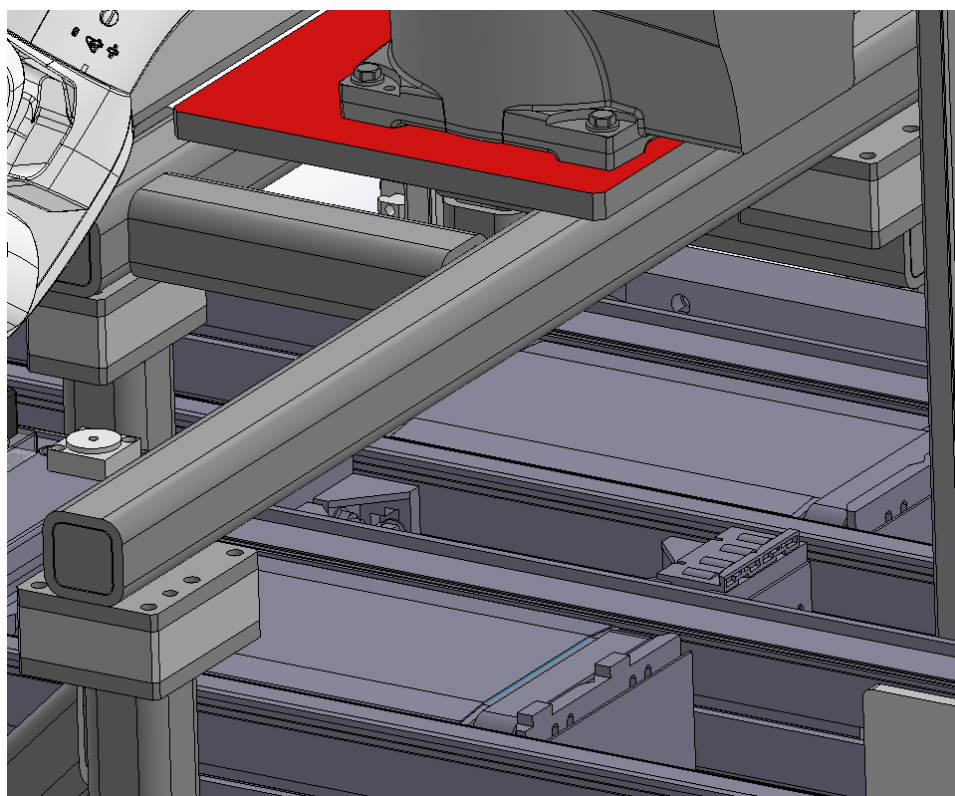
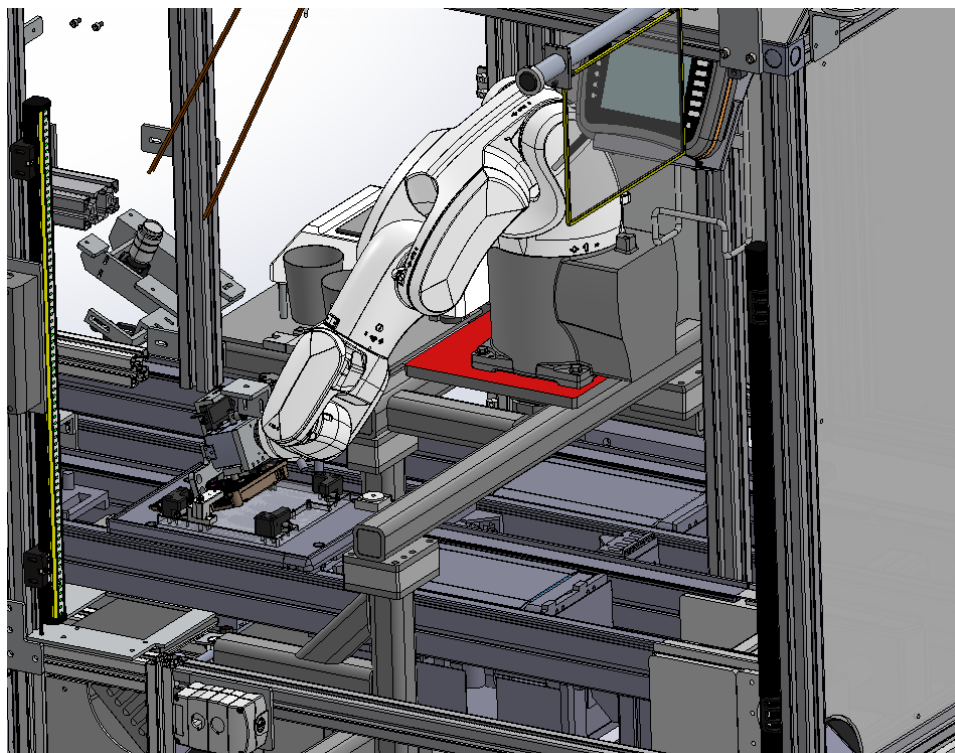
- Identify the gussets that hold the structure of the product box



- Remove the gussets together with the structure of the product box



- When removing, an access will be generated to remove the cover and access the transmission box



- Use the manual BOSCH Rexroth Bosch Group 3 842 999 888  
[https://www.boschrexroth.com/documents/12605/25191392/3842525219\\_2008-02.pdf/d6a1aeb1-cbb4-ab7a-025f-329d4c1c1c22](https://www.boschrexroth.com/documents/12605/25191392/3842525219_2008-02.pdf/d6a1aeb1-cbb4-ab7a-025f-329d4c1c1c22)

